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January 5, 2009

BY HAND DELIVERY AND EMAIL

DOCKET
07-AFC-6
DATE Jan 05 2009
RECD. Jan 05 2009

Mike Monasmith
Siting Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Carlsbad Energy Center Project (07-AFC-6)
Applicant's Comments on San Diego Air Pollution Control District's Preliminary Determination of Compliance

Dear Mr. Monasmith:

On behalf of Carlsbad Energy Center LLC, please find enclosed herein for docketing Applicant's comments on the San Diego Air Pollution Control District's (the "District") Preliminary Determination of Compliance for the Carlsbad Energy Center Project. The correspondence and related attachments were submitted to the District January 5, 2009.

Very truly yours,

Kimberly J. Hellwig
Senior Paralegal

Enclosure
cc: See Attached Proof of Service

Carlsbad Energy Center LLC
1817 Aston Avenue, Suite 104
Carlsbad, CA 92008

Direct Phone: 760.710.2144

January 5, 2009

Dr. Steve Moore
Engineering Group
San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131

Subject: Comments on the Preliminary Determination of Compliance for the Proposed Carlsbad Energy Center Project

Dear Dr. Moore,

Carlsbad Energy Center LLC hereby submits the following comments to the District's November 20, 2008 Preliminary Determination of Compliance (PDOC) for the proposed Carlsbad Energy Center Project (CECP). In the following paragraphs we discuss these comments in more detail.

PDOC Condition 10

As defined by this condition, a gas turbine shutdown begins when the gas turbine generator gross output drops below 114 MW. This number is based on a gas turbine load of 60% and a maximum gross rating of 190 MW for the gas turbine generator during a hot summer day. However, during a cold winter day the maximum gross rating of the gas turbine generator is approximately 219 MW and there is a range of maximum gross ratings dependent upon ambient temperatures. For example, during a winter day at a gas turbine load of 60% the nominal shutdown starting point would be 131 MW rather then 114 MW. Therefore, because the value that would be 60% of maximum load varies over ambient conditions, we request that a single MW value not be used to define when a gas turbine shutdown begins. Rather, we request that a shutdown event be defined as the start of the first 15-minute period when NOx and CO concentrations exceed the applicable permit limits after the operator initiates a shutdown sequence as documented in the operator log.

PDOC Condition 15

Based on information provided by Siemens (see Attachment 1), there can be elevated gas turbine NOx emission levels (as high as 13 ppmv @ 15% O_2 prior to SCR) during

transient gas turbine load changes with ramp rates as low as 5 MW/min and with possibly higher NOx concentrations for ramp rates above that level. These elevated NOx levels during transient operation can occur for several minutes. While there will be some level of SCR system control during these transient episodes, just one 15-minute average elevated NOx level in the range of approximately 6 ppmv would result in an hourly average of 3.0 ppm (with the other minutes during the hour at 2.0 ppmv). For the above example, even with a three-hour average during transient operation the average NOx level would be 2.3 ppmv, which is above the permit limit of 2.0 ppm. Consequently, we are requesting two changes to this condition. First, we request that the triggering transient hour ramp rated be changed from 50 MW/min to 10 MW/min. Second, we request that NOx emissions during transient conditions be excluded from the calculation of hourly NOx concentrations subject to the 2.0 ppm BACT limit.

PDOC Condition 19

We request that the reference to Turbine A be changed to Turbine B (this appears to be a typographical error).

PDOC Conditions 23 and 62

These permit conditions require daily sampling of the natural gas sulfur content. Because the PDOC only includes annual SOx emission limits for the new units and because the proposed project will be exempt from the fuel sulfur monitoring requirements under the NSPS and Acid Rain regulations (due to the use of pipeline quality natural gas), we request that the daily sulfur content sampling be removed from these permit conditions. Additionally, the Encina boilers currently do not conduct daily sulfur sampling and currently comply with Part 75 requirements so it appears daily sampling is not required.

PDOC Conditions 28, 29, and 30

As discussed in the requested change for Condition 15, we request that the calculation of hourly average NOx concentrations for compliance with the 2.0 ppm BACT limit exclude minutes during transient operation.

PDOC Conditions 32, 33, and 34

These permit conditions list the applicable requirements of the SDAPCD gas turbine prohibitory rules (Rules 69.3 and 69.3.1). These rules do not include exemptions during gas turbine commissioning activities. Consequently, during some of the commissioning tests the proposed new units will not be able to comply with the NOx emission limits in these rules. It is our understanding that for previous projects in a similar situation and because the SDAPCD has not yet modified the rules to accommodate gas turbine commissioning, we understand the SDAPCD has dealt with this issue by supporting the issuance of a variance providing compliance protection during the commissioning period.

We also understand that the SDAPCD will use the same approach for the CECP. We request that this understanding be incorporated into the language of the FDOC.

PDOC Condition 54

We request that the submittal deadline for source test and RATA reports be changed from 45 days to 60 days following the completion of the test. This change is consistent with the test report submittal deadlines in other PDOC conditions and is consistent with the gas turbine NSPS (see 40 CFR 60.4375).

PDOC Condition 63

We request that this condition be changed to clarify that the applicant must comply with all applicable monitoring requirements in 40 CFR 75 rather than comply with all monitoring requirements in this regulation.

PDOC Condition 66

We request that the definition for commercial operation be changed from when power is first sold to the grid to when a gas turbine successfully completes all performance/ emission compliance tests. The reason for this change is that power will be sold to the grid as soon as power is generated by a gas turbine. This can occur during the first few days of the gas turbine commissioning period. If left unchanged, this permit condition would require the RATAs to be performed prior to completing the gas turbine commissioning period. Under the Acid Rain regulations (40 CFR 75.4.b.2), the CEM certification test must be performed within 90 unit operating days. Under the NSPS regulations (40 CFR 60.13.c and 60.8.a), the performance tests must be performed within 60 days of achieving maximum production, but not later than 180 days from initial startup. Both of the above requirements place the RATA beyond the gas turbine commissioning period. In addition, we request that the deadline for submitting test reports be changed from 45 to 60 days to make the permit condition consist with other PDOC conditions.

PDOC Condition 83

We request that the reference to VOC and SOx emission limits be removed from the condition because the condition does not include such emission limits.

NOx Excursions (Impacts PDOC Conditions 28 and 39)

The applicant is requesting a change to PDOC Conditions 28 and 39 to address short-term NOx emissions excursions above the 2.0 ppmc permit limit. The proposed language is shown below:

Compliance with the hourly NOx emission limitations specified in Conditions 28 and 39 shall not be required during short-term excursions limited to a cumulative total of 15 hours per rolling 12-month period above 2.0 ppmvd at 15% O_2, for each gas turbine provided that it meets all of the following requirements:

A. This equipment operates under any of the qualified conditions described below:

- *Rapid gas turbine load changes initiated by the California ISO or a successor entity when the plant is operating under Automatic Generation Control;*
- *Rapid gas turbine load changes due to activation of a plant automatic safety or equipment protection system which rapidly decreases turbine load;*
- *The first two 1-hour reporting periods following the initiation/shutdown of the gas turbine inlet air cooler;*
- *Events as the result of technological limitation identified by the operator and approved in writing by the District.*

B. The 1-hour average NOx emissions above 2.0 ppmvd at 15% O_2 did not occur as a result of operator neglect, improper operation or maintenance, or qualified breakdown under District rules.

C. The 1-hour average NOx concentration for periods that result from a qualified operating condition does not exceed 12 ppmvd at 15% O_2.

All NOx emissions during these events shall be included in all calculations of daily and annual emission rates as required by this permit.

The above NOx excursion language has been accepted by other California air districts. In addition, we reviewed continuous emissions monitoring (CEM) data for four California plants equipped with Siemens 501FD combustion turbines similar to those proposed for use at CECP, and eight California plants equipped with General Electric 7FA combustion turbines. Together, these 12 plants are all of the F-class turbine plants operating in California at this time. The CEM data were obtained from the plants' submissions to USEPA under the federal acid rain program, and are all publicly available documents. A summary of the key information for each plant is shown in Table 1 (provided in Attachment 2).

The analysis reviewed the CEMS data reported to EPA for these facilities to determine the frequency with which they exceeded their applicable NOx permit limits, excluding allowable exceedances during startups and shutdowns. These data are summarized in Table 2 (see Attachment 2).

The data in Table 2 reflect all exceedances, not just those that might qualify for treatment under an exclusion or that might be associated with transient operations. The data demonstrate that there is a clear "learning curve" with respect to maintaining low NOx emissions with these units, but that by the second or third year of operation, NOx exceedances are generally only a few per year for all causes. The data demonstrate, however, that excursions do continue to occur, even after several years of operational experience. In addition, the data indicate that not all of the excursions are due solely to abrupt gas turbine load changes. Consequently, there needs to be a permit condition to cover the excursions that are not addressed by the transient load permit exemption in the PDOC (Condition Number 15).

Tables 3 and 4 (see Attachment 2) show the exceedances above 5 ppmc and 10 ppmc, respectively. From these data it is clear that a 30 ppmc excursion limit would accommodate virtually all of the excursions observed in the data we examined. However, because an excursion of this magnitude would result in noncompliance with the 12.9 ppmc NOx limit (9 ppmc corrected for gas turbine efficiency) one-hour average in SDAQMD Rule 69.3.1, we request that the excursion limit be included in the CECP permit at 12 ppmc. A 12 ppmc excursion limit would eliminate more than half of the observed exceedances of the 2.0 ppmc limit that are shown in Table 2.

The permit changes requested above are shown in the markup of the PDOC provided in Attachment 3. If you have any questions or need further information, please don't hesitate to contact me.

Sincerely,
Carlsbad Energy Center LLC

Tim Hemig
Vice President

Enclosures:

cc: George L. Piantka, Carlsbad Energy Center LLC
John McKinsey, Stoel
Will Walters, CEC
Michael Monasmith, CEC
CEC Dockets Office (07-AFC-6)

ATTACHMENT 1

SIEMENS NO_x EMISSION TRANSIENTS DURING LOAD CHANGES

SIEMENS

NO_X Emission Transients During Load Changes

In order to illustrate how nitrogen oxide (NO_X) emissions will increase above a steady state (permitted) level during increases in gas turbine (GT) load level, the Siemens Energy, Inc. Environmental Engineering Department has obtained actual site data from a new Siemens SGT6-5000F GT with a ULN combustion system in simple cycle operation firing natural gas fuel. Figure 1, presented below, reflects an increase in GT load from 60% to 100%. Nominal steady state engine NO_X levels for this unit are expected to be at or below 9 ppmvd @ 15% O_2 at GT load levels of approximately 60% and above. Stack NO_X concentrations can of course be controlled to lower levels with the use of a Selective Catalytic Reduction (SCR) system; however the magnitude of a stack NO_X transient will closely track an engine NO_X transient (e.g., a 4 ppmvd increase in engine NO_X will result in a 4 ppmvd increase in stack NO_X). It should be noted that the potential additional time delay with an SCR system could extend the length of a transient.

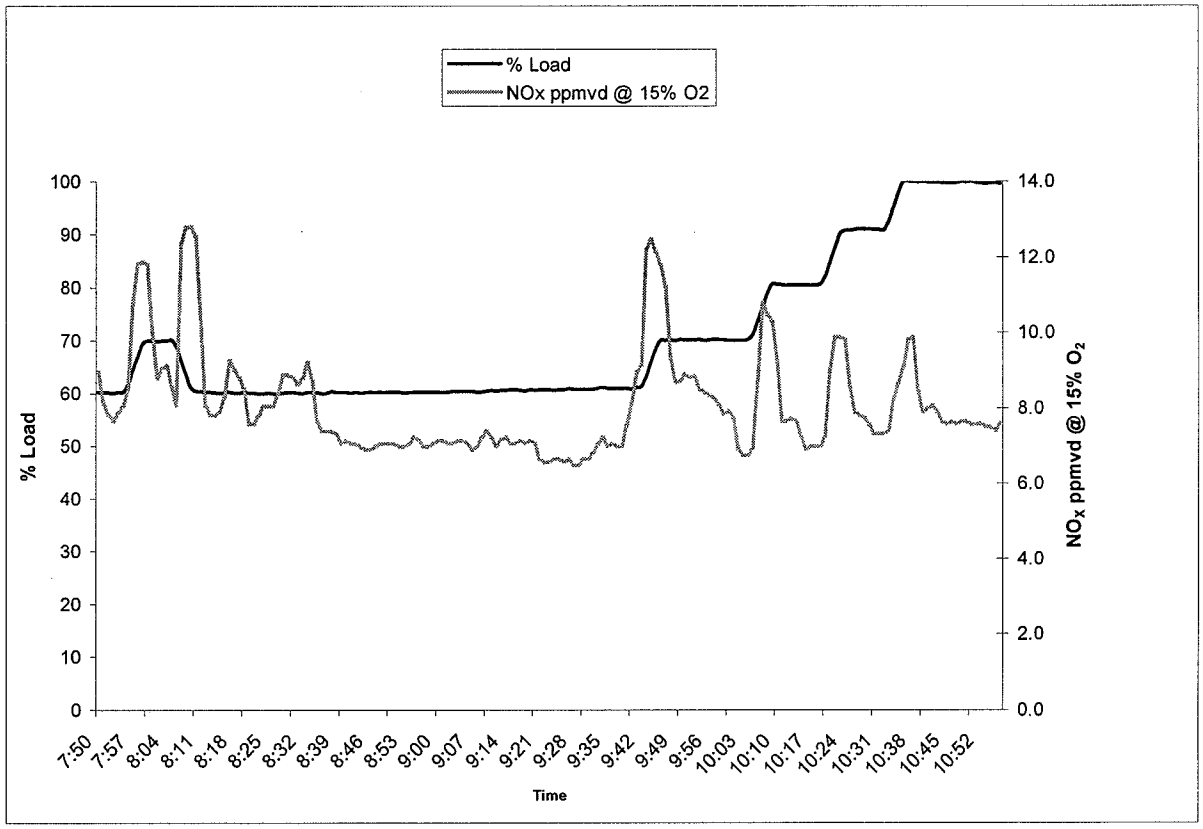

Figure 1. NO_X Transients Between 60% and 100% GT Load – Feb. 29, 2008

Figure 1 clearly shows the repeated transients in NO_X emissions above the nominal steady state level to as high as approximately 13 ppmvd @ 15% O_2. The GT load ramp rates at this facility were all 5 MW/min; higher ramp rates (as well as higher turbine inlet temperatures) may be expected to result in larger NO_X transients of up to 20 ppmvd. The length of these transients can take anywhere from 10 to 25 minutes. An air permit limit based on steady state operation with a one-hour averaging period can very easily be exceeded.

ATTACHMENT 2

CEM DATA SUMMARY TABLES

Table 1
Comparison of Key Plant Parameters

Site	Sutter	Delta	Metcalf	High Desert	Cosumnes	Elk Hills	Los Medanos	Magnolia	Moss Landing	Mountainview	Pastoria	Sunrise
Owner	Calpine	Calpine	Calpine	Constellation	SMUD	Sempra	Calpine	SCPPA	LS Power	SoCal Edison	Calpine	Edison Mission
Turbine Model	501FD	501FD2	501FD2	501FD	7FA	7FA	7FA	7FA	7FA	7FA	7FA	7FA
Configuration	2x1	3x1	2x1	3x1x1	2x1	2x1	2x1	1x1	2x2x1	2x2x1	2x1	2x1
Air District	FRAQMD	BAAQMD	BAAQMD	MDAQMD	SMAQMD	SJVAPDC	BAAQMD	SCAQMD	MBUAPCD	SCAQMD	SJVAPCD	SJVAPCD
NOx Limit	2.5, 1-hr avg	2.5, 1-hr avg	2.5, 1-hr avg	2.5, 1-hr avg	2.0, 1-hr avg	2.5, 1-hr avg	2.5, 1-hr avg	2.0, 3-hr avg	2.5, 1-hr avg	2.0, 3-hr avg	2.5, 1-hr avg	2.0, 1-hr avg
NH3 Limit	10 ppm, 1-hr avg	10 ppm, 3-hr avg	5 ppm, 3-hr avg	10 ppm, 3-hr avg	10 ppm, 3-hr avg	10 ppm, 3-hr avg	10 ppm, 3-hr avg	5 ppm, 1-hr avg	5 ppm, 3-hr avg	5 ppm, 1-hr avg	10 ppm, 3-hr avg	10 ppm, 3-hr avg
CO Limit	4.0 ppm	10 ppm, 3-hr avg	4.0 ppm, 3-hr avg	4.0 ppm, 24-hr avg	4.0 ppm, 3-hr avg	4.0 ppm, 3-hr avg	6.0 ppm, 3-hr avg	2.0 ppm, 1-hr avg	9.0 ppm, 3-hr avg	6.0 ppm, 1-hr avg	6.0 ppm, 3-hr avg	4.0 ppm, 3-hr avg
CTG NOx	25 ppm											10
CTG CO	20 ppm	10 ppm, 3-hr avg										25
NOx Catalyst Efficiency	90%											
NOx Catalyst Vendor	Cormetech			Babcock-Hitachi								
CO Catalyst Efficiency	80%	none			none				none		none	
CO Catalyst Vendor	Camet	none		EmeraChem	none				none		none	
NOx Excursion Language	none	none	none	none	10 hrs/yr, up to 30 ppm	none	none	none	none	15 hrs/yr, up to 25 ppm	none	none

Note: Data based on permit application information and current permits. Some project elements may have changed prior to construction.

Air Districts:

BAAQMD Bay Area Air Quality Management District
FRAQMD Feather River Air Quality Management District
MBUAPCD Monterey Bay Unified Air Pollution Control District
MDAQMD Mojave Desert Air Quality Management District
SCAQMD South Coast Air Quality Management District
SJVAPCD San Joaquin Valley APCD
SMAQMD Sacramento Metropolitan Air Quality Management District

Table 2
Exceedances Above NOx Permit Limit

Site	NOx Limit	2001		2002		2003		2004		2005		2006		2007	
		Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating
501FD Units															
Sutter U1	2.5	0	3110	3	5753	7	6868	1	7270	3	4364	2	4286	0	5340
Sutter U2	2.5	2	3217	2	5784	5	6744	7	7065	4	3528	3	3560	5	4745
Delta U1	2.5	-	-	5	3975	1	4968	0	7325	0	6888	1	6858	0	6927
Delta U2	2.5	-	-	5	3687	0	3343	1	7241	0	6763	0	4792	0	6321
Delta U3	2.5	-	-	6	3798	0	3187	1	6650	0	6584	0	5712	0	5586
Metcalf U1	2.5	-	-	-	-	-	-	-	-	12	4133	4	4727	1	6008
Metcalf U2	2.5	-	-	-	-	-	-	-	-	23	4131	1	4383	2	5389
High Desert U1	2.5	-	-	-	-	50	2432	32	3517	29	4076	49	4400	12	5189
High Desert U2	2.5	-	-	-	-	37	2399	54	3824	17	4145	22	4483	350	5167
High Desert U3	2.5	-	-	-	-	20	2369	52	3772	56	4264	151	4287	20	5135
7FA Units															
Cosumnes U2	2.0	-	-	-	-	-	-	-	-	-	-	0	4571	0	7785
Cosumnes U3	2.0	-	-	-	-	-	-	-	-	-	-	2	5026	2	7636
Magnolia	2.0	-	-	-	-	-	-	-	-	0	726	1	2790	3	3588
Mountainview U3A	2.0	-	-	-	-	-	-	-	-	14	475	12	5768	4	7261
Mountainview U3B	2.0	-	-	-	-	-	-	-	-	9	420	5	4781	1	6272
Mountainview U4A	2.0	-	-	-	-	-	-	-	-	-	-	8	5158	2	6876
Mountainview U4B	2.0	-	-	-	-	-	-	-	-	-	-	13	4156	3	6746
Sunrise U1	2.0	-	-	-	-	4	2539	2	5032	0	5109	0	5596	0	5748
Sunrise U2	2.0	-	-	-	-	26	2205	0	4253	0	4938	0	5663	0	6006

Table 3
Exceedances Above 5 ppmc NOx Level

Site	NOx Limit	2001		2002		2003		2004		2005		2006		2007	
		Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating
501FD Units															
Sutter U1	2.5	0	3110	2	5753	0	6868	1	7270	0	4364	0	4286	0	5340
Sutter U2	2.5	0	3217	0	5784	0	6744	1	7065	0	3528	0	3560	0	4745
Delta U1	2.5	-	-	0	3975	0	4968	0	7325	0	6888	0	6858	0	6927
Delta U2	2.5	-	-	0	3687	0	3343	1	7241	0	6763	0	4792	0	6321
Delta U3	2.5	-	-	4	3798	0	3187	0	6650	0	6584	0	5712	0	5586
Metcalf U1	2.5	-	-	-	-	-	-	-	-	11	4133	0	4727	0	6008
Metcalf U2	2.5	-	-	-	-	-	-	-	-	18	4131	0	4383	1	5389
High Desert U1	2.5	-	-	-	-	31	2432	2	3517	2	4076	4	4400	0	5189
High Desert U2	2.5	-	-	-	-	23	2399	7	3824	0	4145	0	4483	1	5167
High Desert U3	2.5	-	-	-	-	6	2369	6	3772	1	4264	1	4287	2	5135
7FA Units															
Cosumnes U2	2.0	-	-	-	-	-	-	-	-	-	-	0	4571	0	7785
Cosumnes U3	2.0	-	-	-	-	-	-	-	-	-	-	2	5026	0	7636
Magnolia	2.0	-	-	-	-	-	-	-	-	0	726	1	2790	0	3588
Mountainview U3A	2.0	-	-	-	-	-	-	-	-	6	475	7	5768	4	7261
Mountainview U3B	2.0	-	-	-	-	-	-	-	-	5	420	4	4781	1	6272
Mountainview U4A	2.0	-	-	-	-	-	-	-	-	-	-	6	5158	2	6876
Mountainview U4B	2.0	-	-	-	-	-	-	-	-	-	-	7	4156	3	6746
Sunrise U1	2.0	818	818	597	597	3	2539	0	5032	0	5109	0	5596	0	5748
Sunrise U2	2.0	769	772	647	647	25	2205	0	4253	0	4938	0	5663	0	6006

Table 4
Exceedances Above 10 ppmc NOx Level

Site	NOx Limit	2001		2002		2003		2004		2005		2006		2007	
		Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating	Exceed	Operating
501FD Units															
Sutter U1	2.5	0	3110	0	5753	0	6868	1	7270	0	4364	0	4286	0	5340
Sutter U2	2.5	0	3217	0	5784	0	6744	0	7065	0	3528	0	3560	0	4745
Delta U1	2.5	-	-	0	3975	0	4968	0	7325	0	6888	0	6858	0	6927
Delta U2	2.5	-	-	0	3687	0	3343	1	7241	0	6763	0	4792	0	6321
Delta U3	2.5	-	-	2	3798	0	3187	0	6650	0	6584	0	5712	0	5586
Metcalf U1	2.5	-	-	-	-	-	-	-	-	10	4133	0	4727	0	6008
Metcalf U2	2.5	-	-	-	-	-	-	-	-	2	4131	0	4383	1	5389
High Desert U1	2.5	-	-	-	-	24	2432	2	3517	0	4076	0	4400	0	5189
High Desert U2	2.5	-	-	-	-	11	2399	3	3824	0	4145	0	4483	1	5167
High Desert U3	2.5	-	-	-	-	4	2369	1	3772	0	4264	0	4287	0	5135
7FA Units															
Cosumnes U2	2.0	-	-	-	-	-	-	-	-	-	-	0	4571	0	7785
Cosumnes U3	2.0	-	-	-	-	-	-	-	-	-	-	2	5026	0	7636
Magnolia	2.0	-	-	-	-	-	-	-	-	0	726	0	2790	0	3588
Mountainview U3A	2.0	-	-	-	-	-	-	-	-	3	475	5	5768	4	7261
Mountainview U3B	2.0	-	-	-	-	-	-	-	-	2	420	1	4781	0	6272
Mountainview U4A	2.0	-	-	-	-	-	-	-	-	-	-	2	5158	1	6876
Mountainview U4B	2.0	-	-	-	-	-	-	-	-	-	-	2	4156	2	6746
Sunrise U1	2.0	4	818	0	597	0	2539	0	5032	0	5109	0	5596	0	5748
Sunrise U2	2.0	0	772	0	647	0	2205	0	4253	0	4938	0	5663	0	6006

ATTACHMENT 3

CECP PROPOSED PERMIT CONDITIONS

CECP PROPOSED PERMIT CONDITIONS

GENERAL CONDITIONS

1. This equipment shall be properly maintained and kept in good operating condition at all times and, to the extent practicable, maintain and operate the equipment and any associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. [Rule 21 and 40 CFR §60.11]

2. The applicant shall operate the project in accordance with all data and specifications submitted with the application under which this license is issued and District Applications Nos. 985745, 985747 and 985748. [Rule 14]

3. The applicant shall provide access, facilities, utilities, and any necessary safety equipment, with the exception of personal protective equipment requiring individual fitting and specialized training, for source testing and inspection upon request of the Air Pollution Control District. [Rule 19]

4. The applicant shall obtain any necessary District permits for all ancillary combustion equipment including emergency engines, prior to on-site delivery of the equipment. [Rule 10]

5. For each combustion turbine, prior to the initial startup date of that turbine, the applicant shall surrender to the District Class A Emission Reduction Credits (ERCs) in an amount equivalent to 23.91 tons per year of oxides of nitrogen (NOx) to offset the net maximum allowable increase of 19.93 tons per year of NOx emissions for that turbine. [Rule 20.3(d)(8)]

6. Prior to the earlier of the two dates for the initial startup date of the two turbines the applicant shall ~~shall~~ surrender to the District Class A Emission Reduction Credits (ERCs) in an amount equivalent to 0.06 tons per year of oxides of nitrogen (NOx) to offset the net maximum allowable increase of 0.05 tons per year of NOx emissions from the emergency fire pump engine. [Rule 20.3(d)(8)]

7. Pursuant to 40 CFR §72.30(b)(2)(ii) of the Federal Acid Rain Program, the applicant shall submit an application for a Title IV Operating Permit at least 24 months prior to the initial startup of the combustion turbines. [40 CFR Part 72]

8. The applicant shall comply with all applicable provisions of 40 CFR Part 73, including requirements to offset, hold and retire sulfur dioxide (SO_2) allowances. [40 CFR Part 73]

9. All records required by this permit shall be maintained on site for a minimum of five years and made available to the District upon request. [Rule 1421]

COMBUSTION TURBINE CONDITIONS

Definitions

10. For purposes of determining compliance with the emission limits of this permit, a shutdown period is the period of time that begins at the start of the first 15-minute period when NOx and CO concentrations exceed the applicable limits after the operator initiates a shutdown sequence as documented in the

operator log, ~~with the lowering of the gross electrical output (load) of the combustion turbine below 114~~and that ends five minutes after fuel flow to the combustion turbine ceases, not to exceed 35 consecutive minutes. [Rule 20.3(d)(1)]

11. A startup period is the period of time that begins when fuel flows to the combustion turbine following a non-operational period. For purposes of determining compliance with the emission limits of this permit, the duration of a startup period shall not exceed 60 consecutive minutes. [Rule 20.3(d)(1)]

12. A non-operational period is any five-consecutive-minute period when fuel does not flow to the combustion turbine. [Rule 20.3(d)(1)]

13. Tuning is defined as adjustments to the combustion or emission control system that involves operating the combustion turbine or emission control system in a manner such that the emissions control equipment may not be fully effective or operational. Only one gas turbine shall be tuned at any given time. Tuning events shall not exceed 720 minutes in a calendar day nor exceed 40 hours in a calendar year for each turbine. The District compliance division shall be notified at least 24 hours in advance of any tuning event. [Rule 20.3(d)(1)]

14. A Continuous Emission Monitoring System (CEMS) protocol is a document approved in writing by the District that describes the methodology and quality assurance and quality control procedures for monitoring, calculating, and recording stack emissions from the combustion turbine that is monitored by the CEMS. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

15. A transient hour is a clock hour during which the change in gross electrical output produced by the combustion turbine exceeds ~~50~~10 MW per minute for one minute or longer during any period that is not part of a startup or shutdown period. [Rule 20.3(d)(1)]

16. For each combustion turbine, the commissioning period is the period of time commencing with the initial startup of that turbine and ending the sooner of 120 calendar days from the initial startup, after 415 hours of turbine operation, or the date the pemittee notifies the District the commissioning period has ended. [Rule 20.3(d)(1)]

17. For each combustion turbine, the shakedown period is the period of time commencing with the initial startup of that turbine and ending the sooner of 180 calendar days from the initial startup or the date the permittee notifies the District that the shakedown period has ended. [Rules 20.1(c)(16) and 21 and 40 CFR §52.21]

18. Turbine A is the combustion turbine as described on Applications No. 985745 or No. 985747, as applicable, that first completes its shakedown period. If both turbines complete their shakedown period on the same date, then Turbine A is the turbine described on Application No. 985745. [Rules 20.1(c)(16) and 21 and 40 CFR §52.21]

19. Turbine B is the combustion turbine as described on Applications No. 985745 or No. 985747, as applicable, that last completes its shakedown period. If both turbines complete their shakedown period on the same date, then Turbine ~~A~~ Bis the turbine described on Application No. 985747. [Rules 20.1(c)(16) and 21 and 40 CFR §52.21]

20. Low load operation is a period of time that begins when the gross electrical output (load) of the combustion turbine is reduced below 114 MW and that ends 10 consecutive minutes after the combustion turbine load exceeds 114 MW, provided that fuel is continuously combusted during the entire period and one or more clock-hour concentration emission limits specified in this permit are exceeded as a result of the low-load operation. Periods of operation at low load shall not exceed 130 minutes in any calendar day nor an aggregate of 780 minutes in any calendar year. No low load operation period shall begin during a startup period. [Rule 20.3(d)(1)]

21. Unit operating day means, for each combustion turbine, any calendar day in which the turbine combusts fuel. [40 CFR Part 60 Subpart KKKK]

General Conditions

22. The exhaust stacks for each combustion turbine shall be at least 139 feet in height above site base elevation. [Rules 20.3(d)(2) and 1200]

23. The combustion turbines shall be fired on Public Utility Commission (PUC) quality natural gas. The permitee shall maintain, on site, ~~daily and~~ quarterly records of the natural gas sulfur content (grains of sulfur compounds per 100 dscf of natural gas) and hourly records of the higher and lower heating values (btu/scf) of the natural gas; and provide records to District personnel upon request. [Rule 20.3(d)(1)]

24. Unless otherwise specified in this permit, all continuous monitoring data shall be collected at least once every minute. [Rules 69.3, 69.3.1, and 20.3(d)(1)]

Emission Limits

25. For purposes of determining compliance with emission limits based on source testing, the average of three subtests shall be used. For purposes of determining compliance with emission limits based on a Continuous Emission Monitoring System (CEMS), data collected in accordance with the CEMS protocol shall be used and the averages for averaging periods specified herein shall be calculated as specified in the CEMS protocol. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

26. For purposes of determining compliance with emission limits based on CEMS data, all CEMS calculations, averages, and aggregates shall be performed in accordance with the CEMS protocol approved in writing by the District. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

27. For each emission limit expressed as pounds, pounds per hour, or parts per million based on a one-hour or less averaging period or compliance period, compliance shall be based on using data collected at least once every minute when compliance is based on CEMS data. [Rules 69.3, 69.3.1, and 20.3(d)(1)]

28. When a combustion turbine is combusting fuel (operating), the emission concentration of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO_2), shall not exceed 2.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen, except during commissioning, low load operation, startup, -shutdown, transient conditions, or tuning periods for that turbine. For purposes of determining compliance based on CEMS data, the following averaging periods calculated in accordance with the CEMS protocol shall apply:

A. For any transient hour, ~~a 3-clock-hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour~~ the hourly average shall exclude minutes during transient conditions.

B. For all other hours, a 1-clock-hour average.

[Rule 20.3(d)(1)]

29. When a combustion turbine is operating, the emission concentration of carbon monoxide (CO) shall not exceed 2.0 ppmvd corrected to 15 % oxygen, except during commissioning, low load operation, startup, shutdown, transient conditions, or tuning periods for that turbine. For purposes of determining compliance based on CEMS data, the following averaging periods calculated in accordance with the CEMS protocol shall apply:

    A. For any transient hour, ~~a 3-clock-hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour.~~the hourly average shall exclude minutes during transient conditions.

    B. For all other hours, a 1-clock-hour average.

[Rule 20.3(d)(1)]

30. When a combustion turbine is operating, the volatile organic compound (VOC) concentration, calculated as methane, measured in the exhaust stack, shall not exceed 2.0 ppmvd corrected to 15% oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. For purposes of determining compliance based on the CEMS, the District approved CO/VOC surrogate relationship, the CO CEMS data, and the following averaging periods calculated in accordance with the CEMS protocol shall be used:

    A. For any transient hour, ~~a 3-clock-hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour~~the hourly average shall exclude minutes during transient conditions.

    B. For all other hours, a 1-clock-hour average.

    The CO/VOC surrogate relationship shall be verified and/or modified, if necessary, based on source testing. [Rule 20.3(d)(1)]

31. When a combustion turbine is operating, the ammonia concentration (ammonia slip), shall not exceed 5.0 ppmvd corrected to 15 % oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. [Rule 1200]

32. When a combustion turbine is operating with post-combustion air pollution control equipment that controls oxides of nitrogen (NOx) emissions, the emission concentration NOx, calculated as nitrogen dioxide (NO_2), shall not exceed 12.9 ppmvd calculated over each clock-hour period and corrected to 15% oxygen, except for periods of startup and shutdown, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]

33. When a combustion turbine is operating without any post-combustion air pollution control equipment that controls oxides of nitrogen (NOx) emissions, the emission concentration of NOx calculated as

nitrogen dioxide (NO_2) from each turbine shall not exceed 21.6 parts per million by volume on a dry basis (ppmvd) calculated over each clock-hour period and corrected to 15% oxygen, except for periods of startup and shutdown, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]

34. When a combustion turbine is operating, the emission concentration of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO_2) shall not exceed 42 ppmvd calculated over each clock-hour period and corrected to 15% oxygen, on a dry basis, except during periods of startup and shutdown, as defined in Rule 69.3. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3. [Rule 69.3]

35. For each rolling 30-day-unit-operating-day period, average emission concentration of oxides of nitrogen (NOx) for each turbine calculated as nitrogen dioxide (NO_2) in parts per million by volume dry (ppmvd) corrected to 15% oxygen or, alternatively, as elected by the permittee, the average NOx emission rate in pounds per megawatt-hour (lb/MWh) shall not exceed an average emission limit calculated in accordance with 40 CFR Section 60.4380(b)(3). The emission concentration and emission rate averages shall be calculated in accordance with 40 CFR Section 60.4380(b)(1). The average emission concentration limit and emission rate limit shall be based on an average of hourly emission limits over the 30-day-unit-operating period. The hourly emission concentration limit and emission rate limit shall be 15 ppmvd corrected to 15% oxygen and 0.43 lb/MWh, respectively, for clock hours when the combustion turbine load is equal to or greater than 156 megawatts at all times during the clock hour, respectively, and 96 ppmvd corrected to 15% oxygen and 4.7 lb/MWh for all other clock hours when the combustion turbine is operating, respectively. The averages shall exclude all clock hours occurring before the Initial Emission Source Test but shall include emissions during all other times that the equipment is operating including, but not limited to, emissions during low load operation, startup, shutdown, and tuning periods. For each six-calendar-month period, emissions in excess of these limits and monitor downtime shall be identified in accordance with 40 CFR Sections 60.4350 and 60.4380(b)(2), except that Section 60.4350(c) shall not apply for identifying periods in excess of a NOx concentration limit, and reported to the District and the federal EPA in accordance with Title V Operating Permit No. 974488. [40 CFR Part 60 Subpart KKKK]

36. The emissions of particulate matter less than or equal to 10 microns in diameter (PM10) shall not exceed 9.5 pounds per hour for each combustion turbine. [Rule 20.3(d)(2)]

37. The discharge of particulate matter from the exhaust stack of each combustion turbine shall not exceed 0.10 grains per dry standard cubic foot (0.23 grams/dscm). The District may require periodic testing to verify compliance with this standard. [Rule 53]

38. Visible emissions from the lube oil vents and the exhaust stack of each combustion turbine shall not exceed 20% opacity for more than three (3) minutes in any period of 60 consecutive minutes. [Rule50]

39. Mass emissions from each combustion turbine shall not exceed the following limits, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. A 1-clock-hour averaging period for these limits shall apply to CEMS data except for emissions during transient hours when a 3-clock-hour averaging period shall apply.

	Pollutant	*Emission Limit, lb*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*15.1*
ii.	*Carbon Monoxide, CO*	*9.2*

iii.	*Volatile Organic Compounds, VOC*	*5.3*

[Rule 20.3(d)(2)]

40. Excluding any minutes that are coincident with a shutdown period, cumulative mass emissions during a combustion turbine's startup period shall not exceed the following limits during any startup period, except during that turbine's commissioning period.

	Pollutant	*Emission Limit,lb*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*69.2*
ii.	*Carbon Monoxide, CO*	*545*
iii.	*Volatile Organic Compounds, VOC*	*16.3*

[Rule 20.3(d)(1)]

41. Cumulative mass emissions during a combustion turbine's shutdown period shall not exceed the following limits during any shutdown period, except during that turbine's commissioning period.

	Pollutant	*Emission Limit,lb*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*25.7*
ii.	*Carbon Monoxide, CO*	*277*
iii.	*Volatile Organic Compounds, VOC*	*7.0*

[Rule 20.3(d)(1)]

42. The oxides of nitrogen (NOx) emissions from each combustion turbine shall not exceed 200 pounds per hour and total aggregate NOx emissions from both combustion turbines combined shall not exceed 286 pounds per hour, calculated as nitrogen dioxide and measured over each 1-clock-hour period. These emission limits shall apply during all times one or both turbines are operating, including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rule 20.3(d)(2)]

43. The carbon monoxide (CO) emissions from each combustion turbine shall not exceed 3813 pounds per hour and total aggregate CO emissions from both combustion turbines combined shall not exceed 4627 pounds per hour measured over each 1-clock-hour period. This emission limit shall apply during all times that one or both turbines are operating, including, but not limited to emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rule 20.3(d)(2)(i)]

44. Beginning with the earlier of the initial startup dates for either combustion turbine, aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO_2); carbon monoxide (CO); volatile organic compounds (VOCs); particulate matter less than or equal to 10 microns in diameter (PM10); and oxides of sulfur (SOx), calculated as sulfur dioxide (SO_2), from the combustion turbines described in District Applications No. 985745 and 985747 and the emergency fire pump described in Application No. 985748, except emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), shall not exceed the following limits for each rolling 12-calendar-month period:

	Pollutant	*Emission Limit, tons per year*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*72.76*

ii.	*Carbon Monoxide, CO*	*339.9*
iii.	*Volatile Organic Compounds, VOC*	*25.0*
iv.	*Particulate Matter Less than 10 Microns, PM10*	*39.0*
v.	*Oxides of Sulfur, SOx (calculated as SO_2)*	*5.6*

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

45. For each calendar month, the applicant shall maintain records, as applicable, on a calendar monthly basis, of mass emissions during each calendar month of NOx (calculated as NO_2), CO, VOCs, PM10, PM2.5, and SOx (calculated as SO_2), in tons, from each emission unit described in District Applications No. 985745, 985747, and 985748, except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

46. For each calendar month and each rolling 12-calendar-month period, the applicant shall maintain records, as applicable, on a calendar monthly basis, of aggregate mass emissions of NOx (calculated as NO_2), CO, VOCs, PM10, PM2.5, and SOx (calculated as SO_2) in tons for the emission units described in District Applications No. 985745, 985747, and 985748, except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

47. For each combustion turbine, the number of startup periods occurring in each calendar year shall not exceed 1460. [Rules 1200 and 21]

Ammonia - SCR

48. Not later than 90 calendar days prior to the start of construction, the applicant shall submit to the District the final selection, design parameters and details of the selective catalytic reduction (SCR) and oxidation catalyst emission control systems for the combustion turbines including, but not limited to, the minimum ammonia injection temperature for the SCR and the oxidation catalyst CO control efficiency versus temperature and space velocity. Such information may be submitted to the District as trade secret and confidential pursuant to District Rules 175 and 176. [Rules 20.3(d)(1) and 14]

49. When a combustion turbine is operating, ammonia shall be injected at all times that the associated selective catalytic reduction (SCR) system outlet temperature is 450 degrees Fahrenheit or greater. [Rules 20.3(d)(1)]

50. Continuous monitors shall be installed on each SCR system prior to their initial operation to monitor or calculate, and record the ammonia solution injection rate in pounds per hour and the SCR outlet temperature in degrees Fahrenheit. The monitors shall be installed, calibrated and maintained in accordance with a District approved protocol, which may be part of the CEMS protocol. This protocol, which shall include the calculation methodology, shall be submitted to the District for written approval at least 90 days prior to initial startup of the gas turbines with the SCR system. The monitors shall be in full operation at all times when the turbine is in operation. [Rules 20.3(d)(1)]

51. Except during periods when the ammonia injection system is being tuned or one or more ammonia injection systems is in manual control (for compliance with applicable permits), the automatic ammonia injection system serving the SCR system shall be in operation in accordance with manufacturer's specifications at all times when ammonia is being injected into the SCR system. Manufacturer specifications shall be maintained on site and made available to District personnel upon request. [Rules 20.3(d)(1)]

52. The concentration of ammonia solution used in the ammonia injection system. Shall be less than 20% ammonia by weight. Records of ammonia solution concentration shall be maintained on site and made available to District personnel upon request. [Rule 14]

Testing

53. All source test or other tests required by this permit shall be performed by the District or an independent contractor approved by the District. Unless otherwise specified in this permit or authorized in writing by the District, if testing will be performed by an independent contractor and witnessed by the District, a proposed test protocol shall be submitted to the District for written approval at least 60 days prior to source testing. Additionally, the District shall be notified a minimum of 30 days prior to the test so that observers may be present unless otherwise authorized in writing by the District. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK and 40 CFR §60.8]

54. Unless otherwise specified in this permit or authorized in writing by the District, within ~~45~~60 days after completion of a source test or RATA test performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK, 40 CFR §60.8, and 40 CFR Part 75]

55. The exhaust stacks for each combustion turbine shall be equipped with source test ports and platforms to allow for the measurement and collection of stack gas samples consistent with all approved test protocols. The ports and platforms shall be constructed in accordance with District Method 3A, Figure 2, and approved by the District. Ninety days prior to construction of the turbine stacks the project owner shall provide to the District for written approval detailed plan drawings of the turbine stacks that show the sampling ports and demonstrate compliance with the requirements of this condition. [Rule 20]

56. Within 60 calendar days after completion of the commissioning period for each combustion turbine, an Initial Emissions Source Test shall be conducted on that turbine to demonstrate compliance with the NOX, CO, VOC, PM10, and ammonia emission standards of this permit. The source test protocol shall comply with all of the following requirements:

    A. Measurements of NOX and CO concentrations and emissions and O_2 concentration shall be conducted in accordance with U.S. Environmental Protection Agency (EPA) methods 7E, 10, and 3A, respectively, and District source test Method 100, or alternative methods approved by the District and EPA;

    B. Measurement of VOC emissions shall be conducted in accordance with EPA Methods 25A and/or 18, or alternative methods approved by the District and EPA;

    C. Measurements of ammonia emissions shall be conducted in accordance with Bay Area Air Quality Management District Method ST-1B or an alternative method approved by the District and EPA;

D. Measurements of PM10 emissions shall be conducted in accordance with EPA Methods 201A and 202 or alternative methods approved by the District and EPA;

E. Source testing shall be performed at the normal load level, as specified in 40 CFR Part 75 Appendix A Section 6.5.2.1 (d), provided it is not less than 80% of the combustion turbine's rated load unless it is demonstrated to the satisfaction of the District that the combustion turbine cannot operate under these conditions. If the demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous power level. The District may specify additional testing at different load levels or operational conditions to ensure compliance with the emission limits of this permit and District Rules and Regulations.

F. Measurements of particulate matter emissions shall be conducted in accordance with SDAPCD Method 5 or an alternative method approved by the District and EPA; and

G. Measurements of opacity shall be conducted in accordance with EPA Method 9 or an alternative method approved by the District and EPA.

[Rules 20.3(d)(1) and 1200]

57. A renewal source test and a NOX and CO Relative Accuracy Test Audit (RATA) test shall be periodically conducted on each combustion turbine to demonstrate compliance with the NOX, CO, VOC, PM10, and ammonia emission standards of this permit, using District approved methods. The renewal source test and the NOX and CO Relative Accuracy Test Audit (RATA) tests shall be conducted in accordance with the applicable RATA frequency requirements of 40 CFR75, Appendix B, Sections 2.3.1 and 2.3.3. The renewal source test shall be conducted in accordance with a protocol complying with all the applicable requirements of the source test protocol for the Initial Emissions Source Test. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

58. Relative Accuracy Test Audit (RATA) tests and all other required certification tests shall be performed and completed on the CEMS in accordance with applicable provisions of 40 CFR Part 75 Appendix A and B performance specifications and 40 CFR §60.4405. [40 CFR Part 60 Subpart KKKK and 40 CFR Part 75]

59. Within 60 calendar days after completion of the commissioning period for each combustion turbine, an initial emission source test for toxic air contaminants shall be conducted on that turbine to determine the emissions of toxic air contaminants from the combustion turbines. At a minimum the following compounds shall be tested for, and emissions, if any, quantified:

    A. Acetaldehyde

    B. Acrolein

    C. Benzene

    D. Formaldehyde

    E. Toluene

    F. Xylenes

    This list of compounds may be adjusted by the District based on source test results to ensure compliance with District Rule 1200 is demonstrated. The District may require one or more or additional compounds

to be quantified through source testing as needed to ensure compliance with Rule 1200. Within 60 calendar days after completion of a source test performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rule 1200]

60. The District may require one or more of the following compounds, or additional compounds to be quantified through source testing periodically to ensure compliance with rule 1200:

    A. Acetaldehyde
    B. Acrolein
    C. Benzene
    D. Formaldehyde
    E. Toluene
    F. Xylenes

    If the District requires the permittee to perform this source testing, the District shall request the testing in writing a reasonable period of time prior to the testing date. [Rule 1200]

61. The higher heating value of the combustion turbine fuel shall be measured by ASTM D1826–94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter or ASTM D1945–96, Standard Method for Analysis of Natural Gas by Gas Chromatography or an alternative test method approved by the District and EPA. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

62. The sulfur content of the combustion turbine fuel shall be sampled ~~daily~~ quarterly in accordance with ASTM D5287–97, Standard Practice for Automatic Sampling of Gaseous Fuels, and measured with ASTM D1072–90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases; ASTM D3246–05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry; ASTM D4468–85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry; ASTM D6228–98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection; or ASTM D6667–04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence or an alternative test method approved by the District and EPA. [[Rule 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

CONTINUOUS MONITORING

63. The applicant shall comply with the applicable continuous emission monitoring requirements of 40 CFR Part 75. []

64. A continuous emission monitoring system (CEMS) shall be installed on each combustion turbine and properly maintained and calibrated to measure, calculate and record the following, in accordance with the District approved CEMS protocol:

A. Hourly average(s) concentration of oxides of nitrogen (NOX) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd), necessary to demonstrate compliance with the NOx limits of this permit;
B. Hourly average concentration of carbon monoxide (CO) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd), necessary to demonstrate compliance with the CO limits of this permit;
C. Percent oxygen (O_2) in the exhaust gas;
D. Average concentration of oxides of nitrogen (NOX) for each continuous rolling 3-hour period, in parts per million (ppmv) corrected to 15% oxygen;
E. Hourly mass emissions of oxides of nitrogen (NOX), in pounds;
F. Cumulative mass emissions of oxides of nitrogen (NOX) in each startup and shutdown period, in pounds;
G. Daily mass emissions of oxides of nitrogen (NOX), in pounds;
H. Calendar monthly mass emissions of oxides of nitrogen (NOX), in pounds;
I. Rolling 30-unit-operating-day average concentration of oxides of nitrogen (NOX) corrected to 15% oxygen, in parts per million (ppmvd);
J. Rolling 30-unit-operating-day average oxides of nitrogen (NOx) emission rate, in pounds per megawatt-hour (MWh);
K. Annual mass emissions of oxides of nitrogen (NOX), in tons;
L. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds
M. Hourly mass emissions of carbon monoxide (CO), in pounds;
N. Daily mass emission of carbon monoxide (CO), in pounds;
O. Calendar monthly mass emission of carbon monoxide (CO), in pounds;
P. Annual mass emission of carbon monoxide (CO), in tons;

[Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

65. No later than 90 calendar days prior to initial startup of each combustion turbine, the applicant shall submit a CEMS protocol to the District, for written approval that shows how the CEMS will be able to meet all District monitoring requirements. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

66. No later than 60 calendar days after each combustion turbine commences commercial operation (defined for purposes of this condition as when a gas turbine successfully completes initial performance and emission compliance tests ~~the first instance when power is sold to the electrical grid~~), a Relative Accuracy Test Audit (RATA) and other required certification tests shall be performed an completed on the that turbine's CEMS in accordance with 40 CFR Part 75 Appendix A Specifications and Test Procedures. At least 60 calendar days prior to the test date, the applicant shall submit a test protocol to the District for written approval. Additionally, the District and U.S. EPA shall be notified a minimum of 45 calendar days prior to the test so that observers may be present. Within ~~45~~60 calendar days of completion of this test, a written test report shall be submitted to the District for approval. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

67. A monitoring plan in conformance with 40 CFR 75.53 shall be submitted to U.S EPA Region 9 and the District at least 45 calendar days prior to the Relative Accuracy Test Audit test, as required in 40 CFR 75.62. [40 CFR Part 75]

68. The oxides of nitrogen (NOX) and oxygen (O_2) components of the CEMS shall be certified and maintained in accordance with applicable Federal Regulations including the requirements of sections 75.10 and 75.12 of title 40, Code of Federal Regulations Part 75 (40 CFR 75), the performance specifications of appendix a of 40 CFR 75, the quality assurance procedures of Appendix B of 40 CFR 75 and the CEMS protocol approved by the District. The carbon monoxide (CO) components of the CEMS shall be certified and maintained in accordance with 40 CFR 60, Appendices B and F, unless otherwise specified in this permit, and the CEMS protocol approved by the District. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

69. The CEMS shall be in operation in accordance with the District approved CEMs protocol at all times when the turbine is in operation a copy of the District approved CEMS monitoring protocol shall be maintained on site and made available to District personnel upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

70. When the CEMS is not recording data and the combustion turbine is operating, hourly NOx emissions for purposes of annual emission calculations shall be determined in accordance with 40 CFR 75 Subpart C. Additionally, hourly CO emissions for annual emission calculations shall be determined using CO emission factors to be determined from source test emission factors, recorded CEMS data, and fuel consumption data, in terms of pounds per hour of CO for the gas turbine. Emission calculations used to determine hourly emission rates shall be reviewed and approved by the District, in writing, before the hourly emission rates are incorporated into the CEMS emission data. [Rules 20.3(d)(3) and 21 and 40 CFR Part 75]

71. Any violation of any emission standard as indicated by the CEMS shall be reported to the District's compliance division within 96 hours after such occurrence. [Rule 19.2]

72. The CEMS shall be maintained and operated, and reports submitted, in accordance with the requirements of rule 19.2 Sections (d), (e), (f) (1), (f) (2), (f) (3), (f) (4) and (f) (5), and a CEMS protocol approved by the District. [Rule 19.2]

73. Except for changes that are specified in the initial approved CEMS protocol or a subsequent revision to that protocol that is approved in advance, in writing by the District, the District shall be notified in writing at least thirty (30) calendar days prior to any planned changes made in the CEMS or Data Acquisition and Handling System (including the programmable logic controller) software which affects the value of data displayed on the CEMS / DAHS monitors with respect to the parameters measured by their respective sensing devices or any planned changes to the software that controls the ammonia flow to the SCR. Unplanned or emergency changes shall be reported within 96 hours. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

74. At least 90 calendar days prior to the Initial Emissions Source Test , the applicant shall submit a monitoring protocol to the District for written approval which shall specify a method of determining the CO/VOC surrogate relationship that shall be used to demonstrate compliance with all VOC emission limits. This protocol can be provided as part of the Initial Source Test Protocol. [Rule 20.3(d)(1)]

75. Fuel flowmeters shall be installed and maintained to measure the fuel flow rate, corrected for temperature and pressure, to each combustion turbine. Correction factors and constants shall be maintained on site and made available to the District upon request. The fuel flowmeters shall meet the applicable quality assurance requirements of 40 CFR Part 75, Appendix D, and Section 2.1.6. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

76. Each combustion turbine shall be equipped with continuous monitors to measure, calculate and record the following operational characteristics:

    A. Hours of operation, in hours;
    B. Natural gas flow rate to the combustion turbine, in standard cubic feet per hour;
    C. Total heat input to the combustion turbine based the fuels higher heating value, in million British thermal units per hour (MMBtu/hr);
    D. Higher heating value of the fuel on an hourly basis, in million British thermal units per standard cubic foot (MMBtu/scf);
    E. Stack exhaust gas temperature, in degrees Fahrenheit;
    F. Combustion turbine energy output in megawatts hours (MWh); and
    G. Steam turbine energy output in megawatts hours (MWh).

    The monitors shall be installed, calibrated, and maintained in accordance with a turbine operation monitoring protocol, which may be part of the CEMS protocol, approved by the District, which shall include any relevant calculation methodologies. The monitors shall be in full operation at all times when the combustion turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

77. At least 90 calendar days prior to initial startup of the each combustion turbine, the applicant shall submit a turbine monitoring protocol to the District for written approval. This may be part of the CEMS protocol. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

78. Operating logs or Data Acquisition and Handling System (DAHS) records shall be maintained to record the beginning and end times and durations of all startups, shutdowns, and tuning periods to the nearest minute, quantity of fuel used (in each clock hour, calendar month, and 12 calendar month period in standard cubic feet); hours of daily operation; and total cumulative hours of operation during each calendar year. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Commissioning and Shakedown

79. Before the end of the commissioning period for each combustion turbine, the applicant shall install post-combustion air pollution control equipment on that turbine to minimize NOx and CO emissions. Once installed, the post-combustion air pollution control equipment shall be maintained in good condition and shall be in full operation at all times when the turbine is combusting fuel and the air pollution control equipment is at or above its minimum operating temperature. [Rule 20.3(d)(1)]

80. Thirty calendar days after the end of the commissioning period for each combustion turbine, the applicant shall submit a written progress report to the District. This report shall include, a minimum, the date the commissioning period ended, the periods of startup and shutdown, the emissions of NOx and CO during startup and shutdown, and the emissions of NOx and CO during steady state operation. This report shall also detail any turbine or emission control equipment malfunction, upset, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the commissioning period. All of the following continuous monitoring information shall be reported for each minute and averaged over each hour of operation:

A. Concentration of oxides of nitrogen (NOX) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd);
B. Concentration of carbon monoxide (CO) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd);
C. Percent oxygen (O_2) in the exhaust gas;
D. Mass emissions of oxides of nitrogen (NOX), in pounds;
E. Cumulative mass emissions of oxides of nitrogen (NOX) in each startup and shutdown period, in pounds;
F. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds
G. Mass emissions of carbon monoxide (CO), in pounds;
H. Total heat input to the combustion turbine based on the fuel's higher heating value, in million British thermal units per hour (MMBtu/hr);
I. Higher heating value of the fuel on an hourly basis, in million British thermal units per standard cubic foot (MMBtu/scf);
J. Gross electrical power output of the turbine, in megawatts hours (MWh) for each hour; and
K. SCR inlet temperature, in degrees Fahrenheit; and
L. Stack exhaust gas temperature, in degrees Fahrenheit.

The hourly average information shall be submitted in writing and in an electronic format approved by the District. The minute-by-minute information shall be submitted in an electronic format approved by the District. [Rules 69.3, 69.3.1, 20.3(d)(1)and 20.3(d)(2)]

81. The three utility boilers described on District Permits to Operate No. 791, 792, and 793 shall not operate at any time one or both combustion turbines are operating. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

82. Beginning with the initial startup of Turbine A, aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO_2); carbon monoxide (CO); volatile organic compounds (VOCs); particulate matter less than or equal to 10 microns in diameter (PM10); and oxides of sulfur (SOx), calculated as sulfur dioxide (SO_2), from Turbine A and the emergency fire pump described in Application No. 985748, except emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), shall not exceed the following limits for each rolling 12-calendar-month period:

	Pollutant	*Emission Limit, tons per year*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*36.40*
ii.	*Carbon Monoxide, CO*	*169.95*
iii.	*Volatile Organic Compounds, VOC*	*12.5*
iv.	*Particulate Matter Less than 10 Microns, PM10*	*19.5*
v.	*Oxides of Sulfur, SOx (calculated as SO_2)*	*2.8*

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. This condition shall not apply on and after the date Turbine B completes its shakedown period. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

83. Beginning with the date Turbine A completes its shakedown period, aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO_2); carbon monoxide (CO); ~~volatile organic compounds (VOCs)~~ particulate matter less than or equal to 10 microns in diameter (PM10); ~~and oxides of sulfur (SOx), calculated as SO_2~~ from the three utility boilers described on District Permits to Operate No. 791, 792, and 793, shall not exceed the following limits for each rolling 12-calendar-month period:

	Pollutant	*Emission Limit, tons per year*
i.	*Oxides of Nitrogen, NOx (calculated as NO_2)*	*16.33*
ii.	*Carbon Monoxide, CO*	*214.85*
iii.	*Particulate Matter Less than 2.5 Microns, PM2.5*	*21.78*
iv.	*Particulate Matter Less than 10 Microns, PM10*	*26.91*

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during startup, shutdown, and tuning periods. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

84. On and after the date that Turbine B completes its shakedown period, the three utility boilers described on District Permits to Operate No. 791, 792, and 793 shall not operate. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

85. For each calendar month and each rolling 12-calendar-month period, the applicant shall maintain records on a calendar monthly basis, of aggregate mass emissions of NOx (calculated as NO_2), CO, and PM10, in tons, for Turbine A and the emergency generator described on Application No. 985748, except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

86. For each calendar month, the applicant shall maintain records on a calendar monthly basis, of mass emissions during each calendar month of NOx (calculated as NO_2), CO, PM10, and PM2.5, in tons, from each emission unit described on District Permits to Operate No. 791, 792, and 793. . These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

87. For each calendar month and each rolling 12-calendar-month period, the applicant shall maintain records on a calendar monthly basis, of aggregate mass emissions of NOx (calculated as NO_2), CO, PM10, and PM2.5, in tons, for the emission units described in District Permits to Operate No. 791, 792, and 793. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

88. No later than 18 months before the initial startup of either combustion turbine, the applicant shall submit an application to the District for a significant Title V permit modification to limit the aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide; carbon monoxide (CO); particulate matter less than or equal to 10 microns in diameter (PM10); and particulate matter less than or equal to 2.5 microns in diameter (PM2.5), from the three utility boilers described on District Permits to Operate No. 791, 792, and 793 in each rolling 12-calendar-month period as specified in this permit. The application shall include a proposed emission calculation protocol to calculate the emissions from each emission unit. Where applicable, this protocol may rely in whole or in part on the CEMS or other monitoring protocols required by this permit. [Rules 20.3(d)(3), 20.3(d)(8), 1410, and 21 and 40 CFR §52.1]

89. For each combustion turbine, the applicant shall submit the following notifications to the District and U. S. EPA, Region IX:

    A. A notification in accordance with 40 CFR Section 60.7(a)(1) delivered or postmarked not later than 30 calendar days after construction has commenced;
    B. A notification in accordance with 40 CFR Section 60.7(a)(3) delivered or postmarked within 15 calendar days after initial startup; and
    C. An Initial Notification in accordance with 40 CFR Section 63.6145(c) and 40 CFR Section 63.9(b)(2) submitted no later than 120 calendar days after the initial startup of the turbine.

    [40 CFR Part 60 Subpart KKKK, 40 CFR Part §60.7, 40 CFR Part 63 Subpart YYYY, and 40 CFR Part §63.9]

XX. Compliance with the hourly NO_x emission limitations specified in Conditions 28 and 39 shall not be required during short-term excursions limited to a cumulative total of 15 hours per rolling 12-month period above 2.0 ppmvd at 15% O_2, for each gas turbine provided that it meets all of the following requirements:

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A. This equipment operates under any of the qualified conditions described below:

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- Rapid gas turbine load changes initiated by the California ISO or a successor entity when the plant is operating under Automatic Generation Control;
- Rapid gas turbine load changes due to activation of a plant automatic safety or equipment protection system which rapidly decreases turbine load;
- The first two 1-hour reporting periods following the initiation/shutdown of the gas turbine inlet air cooler;
- Events as the result of technological limitation identified by the operator and approved in writing by the District.

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B. The 1-hour average NOx emissions above 2.0 ppmvd at 15% O_2 did not occur as a result of operator neglect, improper operation or maintenance, or qualified breakdown under District rules.

C. The 1-hour average NOx concentration for periods that result from a qualified operating condition does not exceed 12 ppmvd at 15% O_2.

All NOx emissions during these events shall be included in all calculations of daily and annual emission rates as required by this permit.

CONDITIONS FOR EMERGENCY FIRE PUMP ENGINE

90. The engine shall be EPA certified to the 2009 model year or later requirements for emergency fire pump engines of 40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. [Rule 20.3(d)(1), 40 CFR Part 60 Subpart IIII, and 40 CFR Part 63 Subpart ZZZZ]

91. Engine operation for maintenance and testing purposes shall not exceed 50 hours per calendar year. (ATCM reportable) [Rule 20.3(d)(1) and 17 CCR §93115]

92. The engine shall only use CARB Diesel Fuel. [Rules 20.3(d)(1), 69.4.1, and 17 CCR §93115]

93. Visible emissions including crankcase smoke shall comply with Air Pollution Control District Rule 50. [Rule 50]

94. The equipment described above shall not cause or contribute to public nuisance. [Rule 51]

95. This engine shall not operate for non-emergency use during the following periods, as applicable:

    A. Whenever there is any school sponsored activity, if engine is located on school grounds or
    B. Between 7:30 and 3:30 PM on days when school is in session, if the engine is located within 500 feet of, but not on school grounds.

    This condition shall not apply to an engine located at or near any school grounds that also serve as the student's place of residence. (ATCM reportable) [17 CCR §93115]

96. A non-resettable engine hour meter shall be installed on this engine, maintained in good working order, and used for recording engine operating hours. If a meter is replaced, the Air Pollution Control District's Compliance Division shall be notified in writing within 10 calendar days. The written notification shall include the following information:

    A. Old meter's hour reading.
    B. Replacement meter's manufacturer name, model, and serial number if available and current hour reading on replacement meter.
    C. Copy of receipt of new meter or of installation work order.

    A copy of the meter replacement notification shall be maintained on site and made available to the Air Pollution Control District upon request. [Rule 69.4.1, 17 CCR §93115, and 40 CFR Part 60 Subpart IIII]

97. The owner or operator shall conduct periodic maintenance of this engine and add-on control equipment, if any, as recommended by the engine and control equipment manufacturers or as specified by the engine servicing company's maintenance procedure. The periodic maintenance shall be conducted at least once each calendar year. [Rule 69.4.1]

98. The owner or operator of the engine shall maintain the following records on site for at least the same period of time as the engine to which the records apply is located at the site:

    A. Documentation shall be maintained identifying the fuel as CARB diesel;
    B. Manual of recommended maintenance provided by the manufacturer, or maintenance procedures specified by the engine servicing company; and
    C. Records of annual engine maintenance, including the date the maintenance was performed.

    These records shall be made available to the Air Pollution Control District upon request. [Rule 69.4.1]

99. The owner or operator of this equipment shall maintain a monthly operating log containing, at a minimum, the following:

    A. Dates and times of engine operation, indicating whether the operation was for maintenance and testing purposes or emergency use; and, the nature of the emergency, if known;
    B. Hours of operation for all uses other than those specified above and identification of the nature of that use.

    [Rule 69.4.1 and 17 CCR §93115]

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION
FOR THE *CARLSBAD ENERGY CENTER PROJECT*

Docket No. 07-AFC-6
PROOF OF SERVICE
(Revised 1/5/2009)

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DECLARATION OF SERVICE

I, Elizabeth Hecox, declare that on January 5, 2009, I deposited copies of the attached Applicant's Comments on the San Diego Air Pollution Control District's Preliminary Determination of Compliance in the United States mail at 980 Ninth Street, Suite 1900, Sacramento, California 95814, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Elizabeth Hecox